

What is claimed is:

1. A needle having a multi-beveled point, said needle comprising a cannula having a lumen and a central axis therethrough, said multi-beveled point provided at one end of the cannula, said multi-beveled point comprised of a primary bevel, a pair of tip bevels, and a pair of middle bevels, wherein respective of an angle defined between said central axis and a reference plane, each of said primary bevel, said pair of middle bevels, and said pair of tip bevels are provided on said cannula at a respective planar angle, wherein said planar angles of said primary bevel and said pair of middle bevels are substantially equal.

2. A needle as recited by claim 1, wherein respective of an angle of rotation about said central axis, said primary bevel is provided at a first rotational angle, said pair of middle bevels are each provided at a second rotational angle, and said pair of tip bevels are each provided at a third rotational angle.

3. A needle as recited by claim 1, wherein said primary bevel is provided on said cannula at a first planar angle, said pair of middle bevels are provided on said cannula at a second planar angle, and said pair of tip bevels are provided on said cannula at a third planar angle.

4. A needle as recited in claim 3, wherein said first and second planar angles are in the range of 9 degrees plus or minus 1 degree.

5. A needle as recited in claim 3, wherein said first and second planar angles are 13 degrees.

6. A needle as recited by claim 3, wherein said third planar angle is in the range of 15 degrees plus or minus 2 degrees.
7. A needle as recited by claim 3, wherein said third planar angle is 10 degrees.
8. A needle as recited by claim 2, wherein said second rotational angle is in the range of 23 degrees plus or minus 5 degrees.
9. A needle as recited by claim 2, wherein said third rotational angle is in the range of 23 degrees plus or minus 5 degrees.
10. A needle as recited by claim 2, wherein said second and third rotational angles are 22 degrees.
11. A needle as recited by claim 2, wherein said second rotational angle is 30 degrees.
12. A needle as recited by claim 2, wherein said second rotational angle is 35 degrees.
13. A needle as recited by claim 2, wherein said third rotational angle is 30 degrees.
14. A needle as recited by claim 2, wherein said third rotational angle is 35 degrees.

15. A needle as recited by claim 1, wherein said cannula is formed from a metallic material.

16. A needle having a multi-beveled point, comprising a cannula having a lumen and a central axis therethrough, said multi-beveled point provided at one end of the cannula, said multi-beveled point comprised of five bevels, wherein respective of angles defined between said central axis and a reference plane, one of said plurality of bevels is provided on said cannula at a first planar angle, a first pair of said plurality of bevels are provided on said cannula at a second planar angle, and a second pair of said plurality of bevels are provided on said cannula at a third planar angle, wherein said first and second planar angles are substantially equal.

17. A needle as recited by claim 16, and wherein respective of an angle of rotation about said central axis, one of said plurality of bevels is provided at a first rotational angle, a first pair of said plurality of bevels are provided at a second rotational angle, and a second pair of said plurality of bevels are provided at a third rotational angle.

18. A needle as recited by claim 16, wherein said five bevels comprise a primary bevel, a pair of tip bevels, and a pair of middle bevels, each of said pair of middle bevels being intermediate said primary bevel and one of said pair of tip bevels.

19. A needle as recited by claim 18, wherein said primary bevel is provided on said cannula at a first planar angle, said pair of middle bevels are provided on said cannula at a second planar angle, and said pair of tip bevels are provided on said cannula at a third planar angle.

20. A needle as recited by claim 19, wherein respective of an angle of rotation about said central axis, said primary bevel is provided at a first rotational angle, said pair of middle bevels are each provided at a second rotational angle, and said pair of tip bevels are each provided at a third rotational angle.

21. A needle as recited by claim 16, wherein said first and second planar angles are in the range of 9 degrees plus or minus 1 degree.

22. A needle as recited by claim 16, wherein said first and second planar angles are 13 degrees.

23. A needle as recited by claim 16, wherein said third planar angle is in the range of 15 degrees plus or minus 2 degrees.

24. A needle as recited by claim 16, wherein said third planar angle is 10 degrees.

25. A needle as recited by claim 17, wherein said second rotational angle is in the range of 23 degrees plus or minus 5 degrees.

26. A needle as recited by claim 17, wherein said third rotational angle is in the range of 23 degrees plus or minus 5 degrees.

27. A needle as recited by claim 17, wherein said second and third rotational angles are 22 degrees.
28. A needle as recited by claim 17, wherein said second rotational angle is 30 degrees.
29. A needle as recited by claim 17, wherein said second rotational angle is 35 degrees.
30. A needle as recited by claim 17, wherein said third rotational angle is 30 degrees.
31. A needle as recited by claim 17, wherein said third rotational angle is 35 degrees.
32. A needle as recited by claim 16, wherein said cannula is formed from a metallic material.
33. A needle having a multi-beveled point, comprising a cannula having a lumen and a central axis therethrough, said multi-beveled point provided at one end of the cannula, said multi-beveled point comprised of five bevels, wherein each of said five bevels is provided on said cannula at a planar angle defined between said central axis and a reference plane, and wherein each of said five bevels is provided on said cannula at an angle of rotation about said central axis, wherein two of said planar angles are substantially equal.

34. A needle as recited by claim 33, wherein said five bevels comprise a primary bevel, a pair of tip bevels, and a pair of middle bevels, each of said pair of middle bevels being intermediate said primary bevel and one of said pair of tip bevels.

35. A needle as recited by claim 34, wherein said primary bevel is provided on said cannula at a first planar angle, said pair of middle bevels are provided on said cannula at a second planar angle, and said pair of tip bevels are provided on said cannula at a third planar angle, and wherein said first and said second planar angles are substantially equal.

36. A needle as recited by claim 35, wherein respective of an angle of rotation about said central axis, said primary bevel is provided at a first rotational angle, said pair of middle bevels are each provided at a second rotational angle, and said pair of tip bevels are each provided at a third rotational angle.

37. A needle as recited by claim 35, wherein said first and second planar angles are in the range of 9 degrees plus or minus 1 degree.

38. A needle as recited by claim 35, wherein said first and second planar angles are 13 degrees.

39. A needle as recited by claim 35, wherein said third planar angle is in the range of 15 degrees plus or minus 2 degrees.

40. A needle as recited by claim 35, wherein said third planar angle is 10 degrees.
41. A needle as recited by claim 36, wherein said second rotational angle is in the range of 23 degrees plus or minus 5 degrees.
42. A needle as recited by claim 36, wherein said third rotational angle is in the range of 23 degrees plus or minus 5 degrees.
43. A needle as recited by claim 36, wherein said second and third rotational angles are 22 degrees.
44. A needle as recited by claim 36, wherein said second rotational angle is 30 degrees.
45. A needle as recited by claim 36, wherein said second rotational angle is 35 degrees.
46. A needle as recited by claim 36, wherein said third rotational angle is 30 degrees.
47. A needle as recited by claim 36, wherein said third rotational angle is 35 degrees.
48. A needle as recited by claim 33, wherein said cannula is formed from a metallic material.

49. A needle having a multi-beveled point, comprising:

a cannula having a lumen, said lumen extending from a first end of said cannula and having an opening defined through said first end, said first end terminating in a point with first, second, third, fourth and fifth bevels bounding said opening, said first bevel contiguously extending between said fifth and second bevels, said second bevel contiguously extending between said first and third bevels, said third bevel contiguously extending between said second and fourth bevels, said fourth bevel contiguously extending between said third and fifth bevels, and said fifth bevel contiguously extending between said fourth and first bevels, wherein said first and third bevels each have a greater length than said second bevel.

50. A needle as recited by claim 49, wherein said second bevel is provided on said cannula at a first planar angle, said first and third bevels are provided on said cannula at a second planar angle, and said fourth and fifth bevels are provided on said cannula at a third planar angle.

51. A needle as recited by claim 50, wherein said first and second planar angles are substantially equal.

52. A needle having a mutli-beveled point, comprising:

a cannula having a lumen, said lumen extending from a first end of said cannula and having an opening defined through said first end, said first end terminating in a point with a plurality of discrete bevels bounding said opening, wherein one of said plurality of discrete bevels is located furthest from said point and has a length shorter than any of said other ones of said plurality of discrete bevels.

53. A syringe assembly comprising:

a syringe barrel; and

a needle supported by said syringe barrel and having a multi-beveled point, said needle comprising a cannula having a lumen and a central axis therethrough, said multi-beveled point provided at one end of the cannula, said multi-beveled point comprised of a primary bevel, a pair of tip bevels, and a pair of middle bevels, wherein respective of an angle defined between said central axis and a reference plane, each of said primary bevel, said pair of middle bevels, and said pair of tip bevels are provided on said cannula at a respective planar angle, wherein said planar angles of said primary bevel and said pair of middle bevels are substantially equal.

54. A syringe assembly as recited by claim 53, further comprising a needle shield

having an open end and a passage through said open end configured to receive said needle and said needle disposed therein, wherein said needle shield is formed of a styrene block thermoplastic elastomer having a Shore A hardness of between 30 and 90.

55. A syringe assembly as recited by claim 54, wherein said needle shield is formed of a

styrene block poly(ethylene/butylene) thermoplastic elastomer.

56. A syringe assembly comprising:

a syringe barrel; and

a needle supported by said syringe barrel and having a multi-beveled point, said needle comprising a cannula having a lumen and a central axis therethrough, said multi-beveled point

provided at one end of the cannula, said multi-beveled point comprised of five bevels, wherein each of said five bevels is provided on said cannula at a planar angle defined between said central axis and a reference plane, and wherein each of said five bevels is provided on said cannula at an angle of rotation about said central axis, wherein two of said planar angles are substantially equal.

57. A syringe assembly as recited by claim 56, further comprising a needle shield having an open end and a passage through said open end configured to receive said needle and said needle disposed therein, wherein said needle shield is formed of a styrene block thermoplastic elastomer having a Shore A hardness of between 30 and 90.

58. A syringe assembly as recited by claim 57, wherein said needle shield is formed of a styrene block poly(ethylene/butylene) thermoplastic elastomer.

59. A syringe assembly comprising:
a syringe barrel; and
a needle supported by said syringe barrel having a lumen, said lumen extending from a first end of said needle and having an opening defined through said first end, said first end terminating in a point with first, second, third, fourth and fifth bevels bounding said opening, said first bevel contiguously extending between said fifth and second bevels, said second bevel contiguously extending between said first and third bevels, said third bevel contiguously extending between said second and fourth bevels, said fourth bevel contiguously extending between said third and fifth

bevels, and said fifth bevel contiguously extending between said fourth and first bevels, wherein said first and third bevels each have a greater length than said second bevel.

60. A syringe assembly as recited by claim 59, further comprising a needle shield having an open end and a passage through said open end configured to receive said needle and said needle disposed therein, wherein said needle shield is formed of a styrene block thermoplastic elastomer having a Shore A hardness of between 30 and 90.

61. A syringe assembly as recited by claim 60, wherein said needle shield is formed of a styrene block poly(ethylene/butylene) thermoplastic elastomer.

62. A syringe assembly comprising:
a syringe barrel; and
a needle supported by said syringe barrel and having a lumen, said lumen extending from a first end of said needle and having an opening defined through said first end, said first end terminating in a point with a plurality of discrete bevels bounding said opening, wherein one of said plurality of discrete bevels is located furthest from said point and has a length shorter than any of said other ones of said plurality of discrete bevels.

63. A syringe assembly as recited by claim 62, further comprising a needle shield having an open end and a passage through said open end configured to receive said needle and said needle disposed therein, wherein said needle shield is formed of a styrene block thermoplastic elastomer having a Shore A hardness of between 30 and 90.

64. A syringe assembly as recited by claim 63, wherein said needle shield is formed of a styrene block poly(ethylene/butylene) thermoplastic elastomer.